

# What can neuroscience contribute to ethics?

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## Neuroscience cannot and should not be allowed to replace normative questions with scientific ones

Over the past few years considerable attention has been paid to a variety of issues that are now placed collectively under the heading of “Neuroethics”. In both the academic and the popular press there have been discussions about the possibilities and problems offered by cognitive enhancement (memory enhancement, “smart” pills, brain implants) and neuroimaging (lie detection, “mindreading”) as well as debate about the implications of these emerging “neurotechnologies” for morality and the law. This issue of the journal contains eight papers that discuss a broad range of important topics in neuroethics, from cognitive enhancement and the moral status of animals and cyborgs, to the challenges of neurological consults in end of life cases. As these papers demonstrate, advances in neuroscience raise a number of important ethical questions, but can neuroscience help provide any answers?

### FACT AND VALUE

According to the received philosophical wisdom, there is a fundamental distinction between fact and value—between how things are and how they ought to be. On the basis of this distinction one cannot draw normative conclusions from descriptive premises because there is nothing in the premises that would warrant such conclusions: from the fact that happiness is desired it does not follow that it ought to be. This received wisdom applies to neuroethics in the following way: whereas neuroscience might be able to identify the neurophysical correlates for evaluative notions such as preferences and attitudes,<sup>1,2</sup> lying,<sup>3</sup> and the distinction between in control and out of control behaviour,<sup>4</sup> neuroscience cannot, in and by itself, provide the basis for their evaluation. The reason for this is that, in the absence of factors external to these neurophysical states, one neurophysical state is no better or worse than another—internal neurophysical states are logically value neutral. We deem serotonin levels to be excessive on the

basis of normative notions of appropriate function that are informed by societal values. In the absence of these notions why would the level of serotonin be relevant?

However, although the received wisdom says that the questions of what is and what ought to be distinct, we frequently appeal to neuroscientific facts to help us answer significant ethical questions. For example, in *Roper v Simmons* an *amicus* brief filed by the AMA and a number of other professional societies argued that adolescent offenders warrant exclusion from the death penalty on the grounds that “research shows that adolescent brains are more active in regions related to aggression, anger and fear, and less active in regions related to impulse control, risk assessment, and moral reasoning than adult brains...”.<sup>6</sup> In addition, arguments about the morality of abortion are often framed in terms of the moral status of the fetus as determined by the presence or absence of certain neurological capacities such as sentience. A similar appeal to neurological function often occurs in discussions regarding our obligations toward patients in persistent vegetative state or the moral status of animals. Finally, a recent article about cortical activity in minimally conscious patients provoked considerable discussion because, some claimed, the results suggest that patients who we believe to lack awareness are “really there” despite the lack of behavioural evidence.<sup>7</sup> It is fair to contend that one of the reasons that the article provoked such a response is because we believe that the level of cortical activity matters morally: if the minimally conscious patient is “really there” then, other things being equal, our obligations toward the patient are more demanding.

In each of the above instances the underlying assumption is that important moral questions can and should be answered in part by neuroscientific information: a correct understanding of the cognitive capacity or function of the juvenile offender, fetus, animal or

minimally conscious patient is regarded as essential for the correct moral analysis.

It is certainly legitimate, however, to contend that a particular level or range of neurological activity is neither necessary nor sufficient for moral status or responsibility, and hence framing the above issues in this way is mistaken. Nevertheless, if we believe that sentience or consciousness is a condition of personhood or, less controversially, that rationality is a necessary condition of responsibility, and neuroscience identifies how these capacities are linked to brain function, then it is difficult to resist the notion that the level of neurological function is relevant to determining our moral obligations toward others (persons or animals) or to the assignment of responsibility.

The conclusion to be drawn is that neuroscience may have an important role to play in helping us make the right moral judgments. We might have an aversion to anything that smacks of a naturalistic ethics but on the other hand we want our ethics to be realistic, both in the demands that it places upon us and in its empirical content. It should be informed by the facts of the matter.

### FUNCTION AND BEHAVIOUR

To what extent can we expect neuroscience to tell us what is “really going on”? The article by Schiff *et al* regarding cortical activity in minimally conscious patients is controversial and challenging because it suggests that we might have got it wrong: we think that the minimally conscious patient is “not there” but now fMRI reveals that the patient “is there”. In this case, the debate is over what it means to “be there” and the appropriate way that this can be determined. If one accepts the new information and one believes that this suggests that the minimally conscious patient “is there”, then this makes sense only if it is coherent to think of a person “being there” despite the lack of all other behavioural evidence to the contrary. If the patient does not respond to stimuli and is unresponsive and unaware, how should we interpret the neuroscientific data that suggests otherwise?

In broad terms, neuroscience adopts a reductionist approach to folk psychology—our common or garden understanding of human (and other) cognition. Accordingly, psychological or psychobehavioural states can be uniquely correlated with specific neurophysical states, and the proper way to understand the psychological or psychobehavioural state is in terms of their neuroscientific correlates. The expectation for neuroscience is that further

research will either continue to identify correlates between folk psychological and neurophysical states, and hence these notions can be understood in terms of the correlates, or that this research will reveal that our folk psychological notions are not reflected at the neurological level and hence we should revise or abandon our folk psychology. Two possible candidates for such revision or replacement are our notions of “free will” and “consciousness”.

A number of reasons suggest that such reductions will not be forthcoming and, therefore, we will have to decide where our allegiances lie.<sup>8</sup> Furthermore, there are reasons to believe the fundamental assumption behind the neuroscientific view—that psychological states can be understood in terms of neurophysical states—may be incorrect. As Grant Gillett<sup>9</sup> discusses in this issue of the journal, we can imagine that in the not so distant future it will be possible to modify or repair the brain through the implantation of artificial devices. The logical extension of such possibilities is a part human, part machine cyborg. Clearly, there is no requirement that a cyborg’s artificial parts be physically identical to the original and presumably now damaged human parts—we do not think of the successful recipient of a kidney transplant to be a cyborg—all that matters is that the artificial parts *function* in the same way. Other things being equal, I should be satisfied with a new amygdala if it works just as well as the old one, even if it happens to be made out of a recycled travel mug.

If this is correct, then we should avoid thinking of psychological states in terms of specific internal neurophysical states (“the neural correlate of lying”) but in terms of behavioural or functional states. When we say that a person is lying or angry or suffering from depression we are talking about a complex set of interrelated psychological and behavioural states; we are not talking about the underlying neurology. As we see in *Roper v Simmons*, neuroscience can play an important role in explaining why a person is behaving in a certain way but

this is not to say that we should identify psychological states in terms of their neurophysical correlates.

Another argument that leads to the same conclusion is presented by Eastman and Starling.<sup>10</sup> If we think of illness in terms of the biomedical model as “departure from normal biological function”, then a condition can be classified as an illness only if it is the result of “an externally caused biological malfunction”.<sup>10</sup> Presently, however, we categorise a number of conditions as mental illness even though no such necessary condition has been met—for example, depression or schizophrenia. Perhaps neuroscience will find that all of the conditions that we include under the term “mental illness” can be type-identified according to specific neurophysical factors, but this seems unlikely; as Eric Matthews says vividly: “The same pathology is likely to underlie instances of hearing God’s voice commanding the murder of prostitutes, and God’s voice commanding the evangelization of prostitutes”.<sup>11</sup> In other words, the differences between mental illness and mental health cannot be explained in terms of a difference between neurophysical states. If this is correct then we should not expect to find specific neurophysical correlations for each and every mental illness.

Furthermore, as Eastman and Starling contend, mental illness can be thought of as a departure from social norms rather than from normal biological function: we think that *Lear* has gone mad because he is wandering naked across the heath and “...strives in his little world of man to out-scorn the to-and-fro-conflicting wind and rain”.<sup>12</sup> We think him to be mad on account of the fact that his behaviour and desires are so at odds with what we consider normal and rational. This does not rule out the possibility that *Lear*’s madness has a physiological basis nor that his condition could be treated pharmacologically, but it does suggest that the appropriateness of the diagnosis does not require these claims to be true.

What can neuroscience contribute to ethics? Neuroscience continues to reveal

how specific brain function and mal-function relates to our psychobehavioural states and so it is entirely appropriate that we pay attention to neuroscience since it seems it can provide an explanation why a person acted in a certain way. Similarly, if we continue to ground our understanding of moral status on psychological notions, and we wish these notions to be informed by science, then neuroscience can play an important role in framing the moral landscape. What neuroscience cannot do, and should not be allowed to do, however, is to replace normative questions with scientific ones.

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